

TP-00733

ORIGINAL

TP-00733

NOAA FORM 76-35	
U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY	
DESCRIPTIVE REPORT	
Type of Survey	Shoreline
Job No.	CM-7311
Map No.	TP-00733
Classification No.	Final
Edition No.	1
Field Edited Map	
LOCALITY	
State	Washington
General Locality	Tacoma Harbor
Locality	Blair Waterway
1973 TO 1974	
REGISTRY IN ARCHIVES	
DATE	

☆ U.S. GOVERNMENT PRINTING OFFICE: 1974-762-901

RMS 18453-9-30-81 RL
 ROS 18445-5c 9-30-81-RL
 ROS 18448 9-30-81-RL

NOAA FORM 76-36A (3-72)		U. S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMIN.	
DESCRIPTIVE REPORT - DATA RECORD		TYPE OF SURVEY <input checked="" type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED	
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division Atlantic Marine Center, Norfolk, VA OFFICER-IN-CHARGE Jeffrey G. Carlen, Cdr., NOAA		SURVEY TP. <u>00733</u> MAP EDITION NO. <u>(1)</u> MAP CLASS <u>P</u> JOB <u>RM-CM-7311</u>	
PHOTOGRAMMETRIC OFFICE Coastal Mapping Division Atlantic Marine Center, Norfolk, VA OFFICER-IN-CHARGE Jeffrey G. Carlen, Cdr., NOAA		LAST PRECEDING MAP EDITION TYPE OF SURVEY <input type="checkbox"/> ORIGINAL <input type="checkbox"/> RESURVEY <input type="checkbox"/> REVISED JOB PH. _____ MAP CLASS _____ SURVEY DATES: 19__ TO 19__	
I. INSTRUCTIONS DATED			
1. OFFICE		2. FIELD	
Aerotriangulation Compilation Aug 30, 1973 Jan 22, 1974		May 17, 1973	
II. DATUMS			
1. HORIZONTAL: <input checked="" type="checkbox"/> 1927 NORTH AMERICAN		OTHER (Specify) _____	
2. VERTICAL: <input checked="" type="checkbox"/> MEAN HIGH-WATER <input type="checkbox"/> MEAN LOW-WATER <input checked="" type="checkbox"/> MEAN LOWER LOW-WATER <input type="checkbox"/> MEAN SEA LEVEL		OTHER (Specify) _____	
3. MAP PROJECTION Polyconic		4. GRID(S) STATE Washington ZONE South	
5. SCALE 1:5,000		STATE _____ ZONE _____	
III. HISTORY OF OFFICE OPERATIONS			
OPERATIONS		NAME	DATE
1. AEROTRIANGULATION METHOD: Analytic LANDMARKS AND AIDS BY		I. O. Raborn	1/74
2. CONTROL AND BRIDGE POINTS METHOD: Calcomp PLOTTED BY CHECKED BY		R. Robertson	1/74
3. STEREOSCOPIC INSTRUMENT COMPILATION INSTRUMENT: Wild B-8 SCALE: 1:7,500 PLANIMETRY BY CHECKED BY CONTOURS BY CHECKED BY		Richard White Lowell Neterer NA NA	2/74 2/74
4. MANUSCRIPT DELINEATION METHOD: Smooth Draft SCALE: 1:5,000 PLANIMETRY BY CHECKED BY CONTOURS BY CHECKED BY HYDRO SUPPORT DATA BY CHECKED BY		Charles Parker Richard White NA NA Charles Parker Richard White	2/74 2/74 2/74 3/74
5. OFFICE INSPECTION PRIOR TO FIELD EDIT BY		Richard White	3/74
6. APPLICATION OF FIELD EDIT DATA BY CHECKED BY		J. Desch A. L. Shands	5/75 5/75
7. COMPILATION SECTION REVIEW BY		A. C. Rauck, Jr.	5/77
8. FINAL REVIEW BY		A. L. Shands	Jan. 1978
9. DATA FORWARDED TO PHOTOGRAMMETRIC BRANCH BY		A. L. Shands	Mar. 1978
10. DATA EXAMINED IN PHOTOGRAMMETRIC BRANCH BY		J. B. Phillips	March 1978
11. MAP REGISTERED - COASTAL SURVEY SECTION BY		R. T. Cator	May 1978

NOAA FORM 76-36B
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00733
COMPILATION SOURCES

1. COMPILATION PHOTOGRAPHY

CAMERA(S) Wild RC-8 "E"		TYPES OF PHOTOGRAPHY LEGEND (C) COLOR (P) PANCHROMATIC (I) INFRARED		TIME REFERENCE	
TIDE STAGE REFERENCE <input checked="" type="checkbox"/> PREDICTED TIDES <input type="checkbox"/> REFERENCE STATION RECORDS <input type="checkbox"/> TIDE CONTROLLED PHOTOGRAPHY				ZONE Pacific	<input checked="" type="checkbox"/> STANDARD
				MERIDIAN 120th	<input type="checkbox"/> DAYLIGHT
NUMBER AND TYPE	DATE	TIME	SCALE	STAGE OF TIDE	
73E(C) 9069 thru 9071	6/22/73	09:36	1:15,000	7.9 ft. above MLLW	
73E(C) 9076	6/22/73	09:43	1:15,000	7.8 ft. above MLLW	
73E(C) 9114 and 9115	6/22/73	10:18	1:15,000	7.4 ft. above MLLW	
73E(C) 9090 thru 9092	6/22/73	09:55	1:15,000	7.7 ft. above MLLW	

REMARKS

2. SOURCE OF MEAN HIGH-WATER LINE:

The mean high water line was delineated from the above listed photography.

3. SOURCE OF MEAN LOW-WATER OR MEAN LOWER LOW-WATER LINE:

None compiled.

4. CONTEMPORARY HYDROGRAPHIC SURVEYS (List only those surveys that are sources for photogrammetric survey information.)

SURVEY NUMBER	DATE(S)	SURVEY COPY USED	SURVEY NUMBER	DATE(S)	SURVEY COPY USED

5. FINAL JUNCTIONS

NORTH	EAST	SOUTH	WEST
No Survey	TP-00736	TP-00735	TP-00732

REMARKS

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEYTP-00733
HISTORY OF FIELD OPERATIONSI. ☒ FIELD INSPECTION OPERATION☐ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	R. B. Melby	6/73
2. HORIZONTAL CONTROL	R. B. Melby	6/73
RECOVERED BY	None	
ESTABLISHED BY	L. L. Riggers	6/73
PRE-MARKED OR IDENTIFIED BY	NA	
3. VERTICAL CONTROL	NA	
RECOVERED BY	NA	
ESTABLISHED BY	NA	
PRE-MARKED OR IDENTIFIED BY	None	
4. LANDMARKS AND AIDS TO NAVIGATION	None	
RECOVERED (Triangulation Stations) BY	None	
LOCATED (Field Methods) BY	None	
IDENTIFIED BY	None	
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION	
	<input type="checkbox"/> COMPLETE	
	<input type="checkbox"/> SPECIFIC NAMES ONLY	
	<input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	NA

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

2. VERTICAL CONTROL IDENTIFIED

NA

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION
73E(C)9070	NASH R.M., 1935		

3. PHOTO NUMBERS (Clarification of details)

None

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

1 Form 152

1 Form 26

NOAA FORM 76-36C
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

TP-00733

HISTORY OF FIELD OPERATIONS

I. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	M. Fleming	3/74 - 4/74
2. HORIZONTAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	None None None
3. VERTICAL CONTROL	RECOVERED BY ESTABLISHED BY PRE-MARKED OR IDENTIFIED BY	NA NA NA
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY LOCATED (Field Methods) BY IDENTIFIED BY	None None None
5. GEOGRAPHIC NAMES, INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY	None
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY	NA

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None

2. VERTICAL CONTROL IDENTIFIED

NA

PHOTO NUMBER

STATION NAME

PHOTO NUMBER

STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

None

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER

OBJECT NAME

PHOTO NUMBER

OBJECT NAME

5. GEOGRAPHIC NAMES:

☐ REPORT☒ NONE

6. BOUNDARY AND LIMITS:

☐ REPORT☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

None

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodesy Division)

1 Field Edit Ozalid and Field Edit Report

NOAA FORM 76-36C
(3-72)

TP-00733
HISTORY OF FIELD OPERATIONSI. ☐ FIELD INSPECTION OPERATION☒ FIELD EDIT OPERATION

OPERATION	NAME	DATE
1. CHIEF OF FIELD PARTY	M. Fleming	12/74 - 1/75
2. HORIZONTAL CONTROL	RECOVERED BY L. Riggers - D. Eilers	12/74
	ESTABLISHED BY None	
	PRE-MARKED OR IDENTIFIED BY None	
3. VERTICAL CONTROL	RECOVERED BY NA	
	ESTABLISHED BY NA	
	PRE-MARKED OR IDENTIFIED BY NA	
4. LANDMARKS AND AIDS TO NAVIGATION	RECOVERED (Triangulation Stations) BY L. Riggers - D. Eilers	12/74
	LOCATED (Field Methods) BY L. Riggers - D. Eilers	12/74
	IDENTIFIED BY L. Riggers - D. Eilers	12/74
5. GEOGRAPHIC NAMES INVESTIGATION	TYPE OF INVESTIGATION <input type="checkbox"/> COMPLETE <input type="checkbox"/> SPECIFIC NAMES ONLY <input checked="" type="checkbox"/> NO INVESTIGATION	
6. PHOTO INSPECTION	CLARIFICATION OF DETAILS BY D. Eilers	12/74
7. BOUNDARIES AND LIMITS	SURVEYED OR IDENTIFIED BY NA	

II. SOURCE DATA

1. HORIZONTAL CONTROL IDENTIFIED

None

2. VERTICAL CONTROL IDENTIFIED

NA

PHOTO NUMBER	STATION NAME	PHOTO NUMBER	STATION DESIGNATION

3. PHOTO NUMBERS (Clarification of details)

73E(C) 9091 and 9113 and 9114

4. LANDMARKS AND AIDS TO NAVIGATION IDENTIFIED

None

PHOTO NUMBER	OBJECT NAME	PHOTO NUMBER	OBJECT NAME

5. GEOGRAPHIC NAMES: ☐ REPORT ☒ NONE6. BOUNDARY AND LIMITS: ☐ REPORT ☒ NONE

7. SUPPLEMENTAL MAPS AND PLANS

1 set Construction Plans for New Pier

8. OTHER FIELD RECORDS (Sketch books, etc. DO NOT list data submitted to the Geodetic Division)

- 1 Original Field Edit Ozalid
- 1 Addenda Field Edit Report
- 3 Form 76-40's

NOAA FORM 76-36D
(3-72)U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATIONTP-00733
RECORD OF SURVEY USE

I. MANUSCRIPT COPIES

COMPILATION STAGES			DATE MANUSCRIPT FORWARDED	
DATA COMPILED	DATE	REMARKS	MARINE CHARTS	HYDRO SUPPORT
Compilation complete, pending field edit.	2/74	Class III Manuscript Superseded	3/74	3/74
Field edit applied. Compilation complete.	5/75	Class I Manuscript	5/77	
Final Review	Jan. 1978	Final	Feb. 1978	

II. LANDMARKS AND AIDS TO NAVIGATION

1. REPORTS TO MARINE CHART DIVISION, NAUTICAL DATA BRANCH

NUMBER	CHART LETTER NUMBER ASSIGNED	DATE FORWARDED	REMARKS
1		6/16/77	Aids.
1		6/16/77	Landmarks.
1		6/16/77	Landmarks to be deleted.

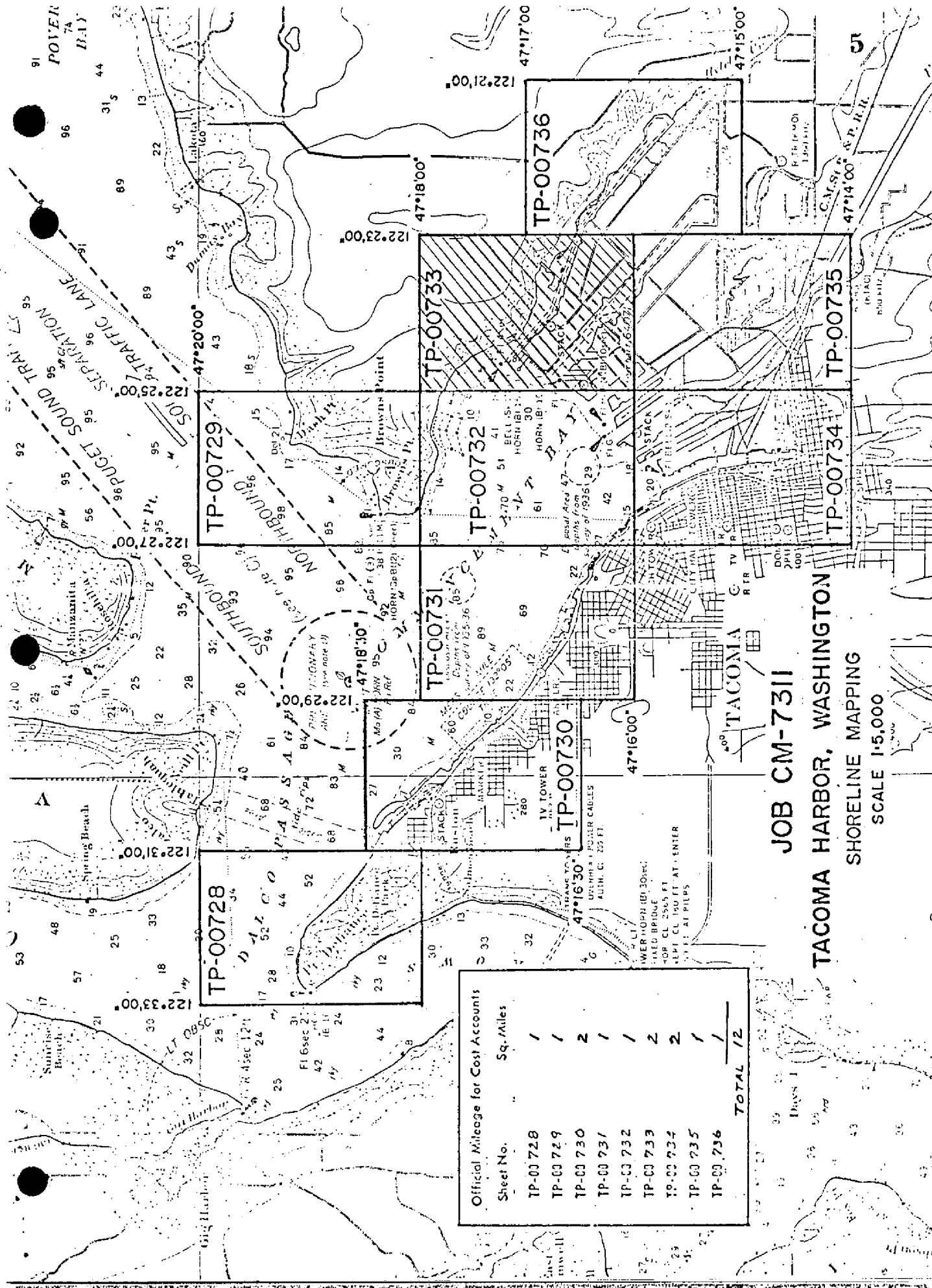
2. ☐ REPORT TO MARINE CHART DIVISION, COAST PILOT BRANCH. DATE FORWARDED: June 16, 1977
3. ☐ REPORT TO AERONAUTICAL CHART DIVISION, AERONAUTICAL DATA SECTION. DATE FORWARDED: _____

III. FEDERAL RECORDS CENTER DATA

1. ☒ BRIDGING PHOTOGRAPHS; ☒ DUPLICATE BRIDGING REPORT; ☒ COMPUTER READOUTS.
2. ☒ CONTROL STATION IDENTIFICATION CARDS; ☒ FORM NOS 76-42 SUBMITTED BY FIELD PARTIES.
3. ☒ SOURCE DATA (except for Geographic Names Report) AS LISTED IN SECTION II, NOAA FORM 76-36C.
ACCOUNT FOR EXCEPTIONS:
4. ☐ DATA TO FEDERAL RECORDS CENTER. DATE FORWARDED: _____

IV. SURVEY EDITIONS (This section shall be completed each time a new map edition is registered)

SECOND EDITION	SURVEY NUMBER TP - _____ (2)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
THIRD EDITION	SURVEY NUMBER TP - _____ (3)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	
FOURTH EDITION	SURVEY NUMBER TP - _____ (4)	JOB NUMBER PH - _____	TYPE OF SURVEY <input type="checkbox"/> REVISED <input type="checkbox"/> RESURVEY MAP CLASS <input type="checkbox"/> II. <input type="checkbox"/> III. <input type="checkbox"/> IV. <input type="checkbox"/> V. <input type="checkbox"/> FINAL
	DATE OF PHOTOGRAPHY	DATE OF FIELD EDIT	



JOB CM-7311
TACOMA HARBOR, WASHINGTON
SHORELINE MAPPING
SCALE 1:5,000

Official Mileage for Cost Accounts		
Sheet No.	Sq. Miles	
TP-00728	1	
TP-00729	1	
TP-00730	2	
TP-00731	1	
TP-00732	1	
TP-00733	2	
TP-00734	2	
TP-00735	1	
TP-00736	1	
TOTAL		12

SUMMARY TO ACCOMPANY

DESCRIPTIVE REPORTS TP-00728 thru TP-00736

The maps covered in this summary comprise all of Project CM-7311. They are all standard shoreline maps covering Commencement Bay and including the Hylebos, Blair, Sitcum, Milwaukee, Puyallup, St. Paul, Middle and City Waterways. The purpose of the project is to provide up-to-date shoreline and alongshore delineation in support of contemporary hydrographic surveys and for nautical chart construction. All maps are 1: 5,000 scale.

Photography of the area was flown at 1:15,000 scale in June, 1973. Both onshore and offshore flights were flown. Ratios of the offshore flights were processed by the compilation office for photo-hydro support.

Field work prior to compilation was limited to the recovery and identification of horizontal control used in bridging. There was no clarification of details.

Bridging was done at the Washington Science Center in January, 1974, using the onshore flights. Analytic triangulation methods were used. Points common to the offshore flights were established to determine ratio scales.

The maps were compiled at the Atlantic Marine Center during February and March, 1974, by Wild B-8 instrument method.

Many buildings currently charted are not shown on the maps. In most cases, buildings are shown on the chart as they appear on the photographs. However, in a few instances buildings shown on the chart are not visible on the photographs. Where this is so, that fact is stated in the review report of the affected map.

Field edit was partially done in April, 1974 and completed in December, 1974. It was applied to the maps at the Atlantic Marine Center in May, 1975.

Final review was performed at the Atlantic Marine Center in January, 1978. The original base maps and all pertinent data was forwarded to the Washington Science Center for final registration.

FIELD INSPECTION

TP-00733

There was no field inspection prior to compilation. Field work accomplished was limited to the recovery and identification of the horizontal control necessary for the aerotriangulation of the project.

PHOTOGRAMMETRIC PLOT REPORT

Tacoma Harbor

Washington

Job CM-7311

January 1974

21. Area Covered

The area covered by this report pertains to the shoreline of Commencement Bay, Tacoma, Washington. This area is covered by nine 1:5,000 scale sheets, TP-00728 thru TP-00736.

22. Method

Three strips of 1:15,000 scale color photography were bridged by analytic aerotriangulation methods. Strip No. 1 was measured on the David W. Mann Company mono comparator Model 422 and strips 2 and 3 were measured on the Wild stereo comparator. Sketch number 1 shows the flight lines of the photography and the placement of the control used in the adjustment. The three strips were controlled by field identified control paneled in 1973. Old control, which was office identified, was floated for checks. Ties were made between all bridging strips. Common points were located between the bridging photography and the offshore flights to determine the ratio scale. One cronapaque and one matte each were ordered of the offshore flights. Sketch number 2 shows the flight lines of the offshore photography. Data for ruling projections were furnished to the Coradomat to be plotted on the Washington South Plane Coordinate System.

23. Adequacy of Control

The control was adequate.

24. Supplemental Data

USGS quadrangles were used to provide vertical control for the adjustment.

25. Photography

The photography was adequate.

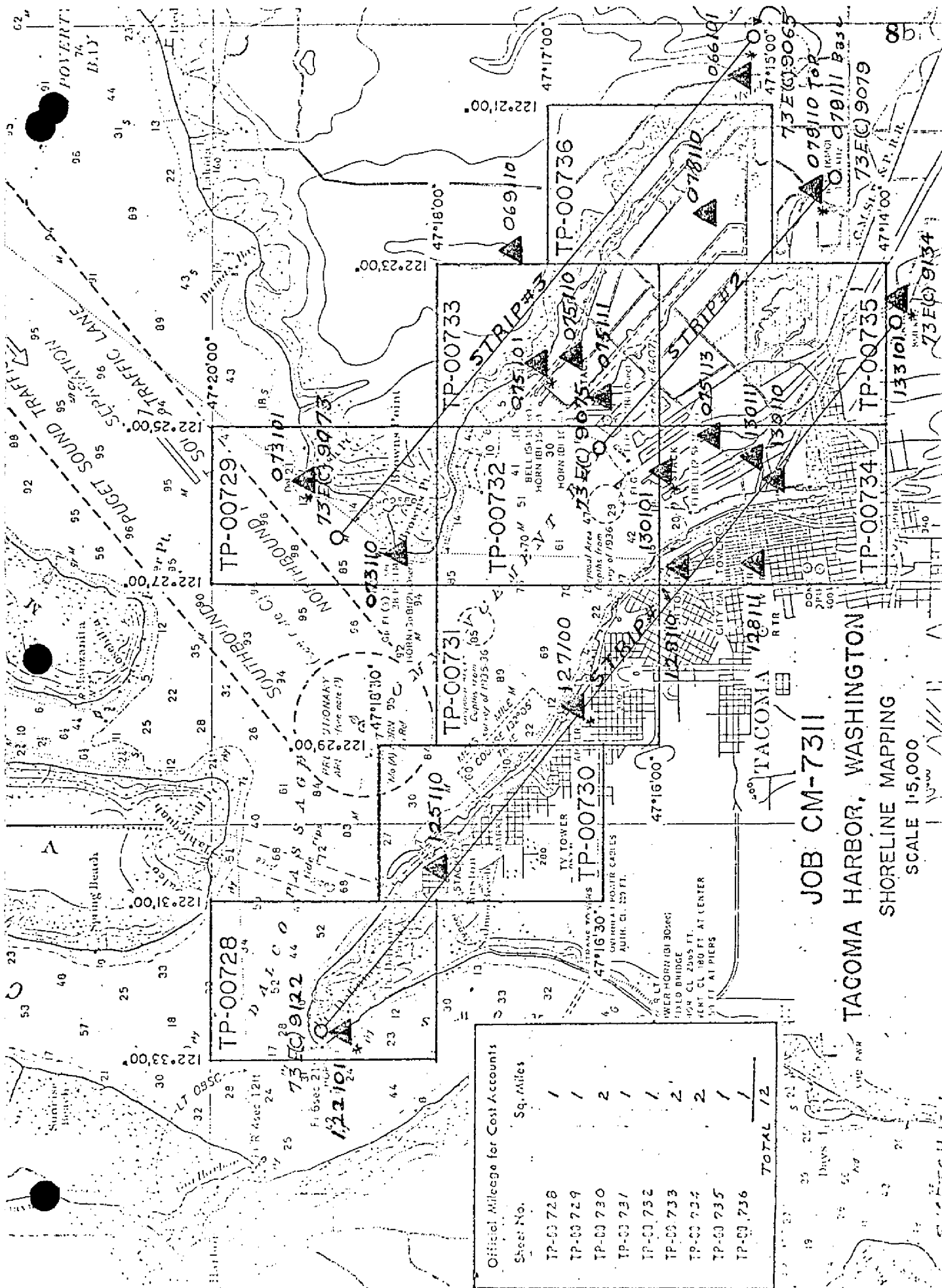
Respectfully submitted,

Ivey O. Raborn
Ivey O. Raborn

Approved and Forwarded:

John D. Perrow, Jr.
John D. Perrow, Jr.

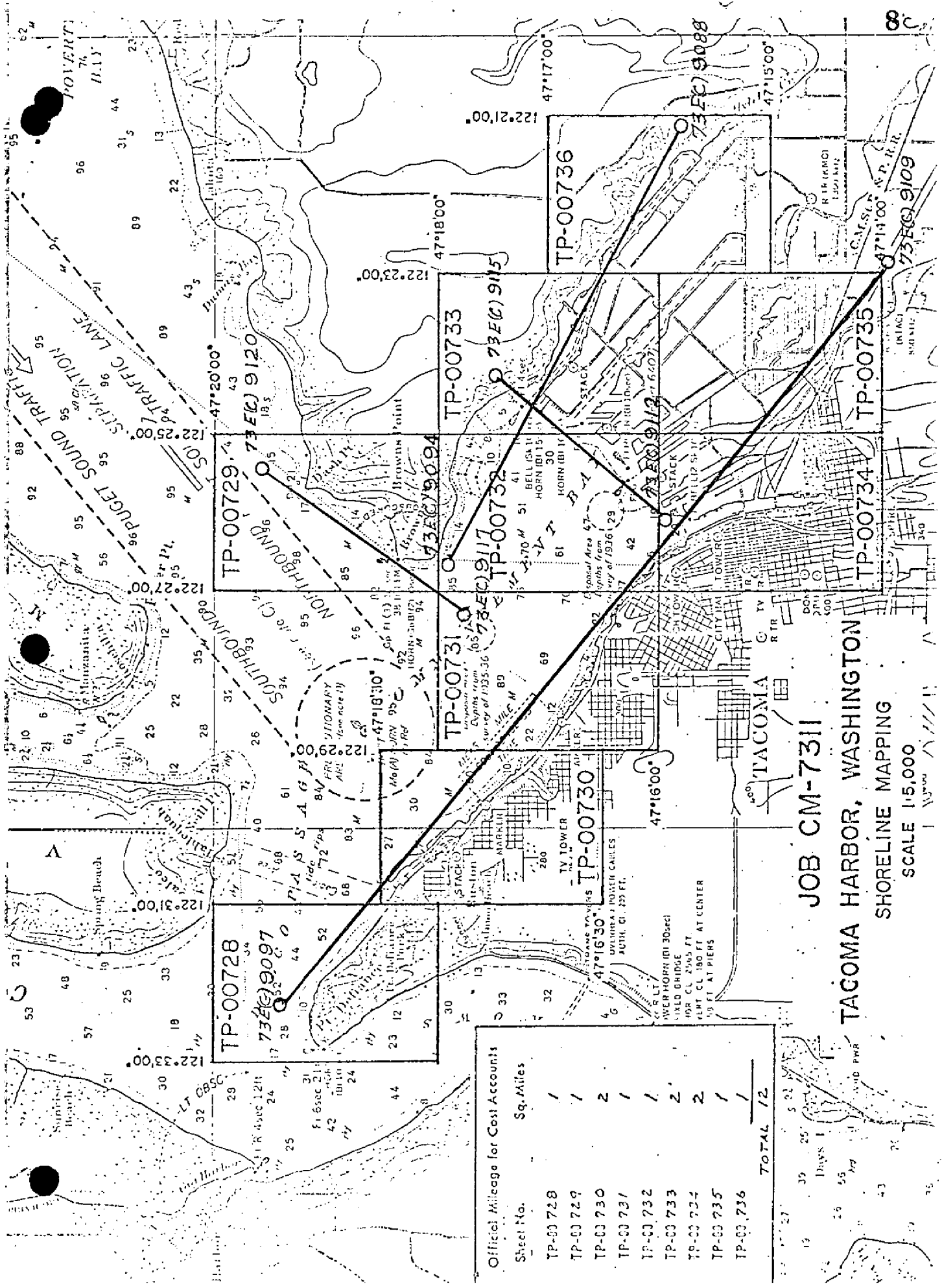
Chief, Aerotriangulation Section



JOB CM-7311
 TACOMA HARBOR, WASHINGTON
 SHORELINE MAPPING
 SCALE 1:5,000

Sheet No.	Sq. Miles
TP-00728	1
TP-00729	1
TP-00730	2
TP-00731	1
TP-00732	1
TP-00733	2
TP-00734	2
TP-00735	1
TP-00736	1
TOTAL	12

Days 1
 19 20 21 22 23 24 25 26 27 28 29 30 31



JOB CM-7311

TACOMA HARBOR, WASHINGTON

SHORELINE MAPPING

SCALE 1:5,000

Official Mileage for Cost Accounts		
Sheet No.	Sq. Miles	
TP-00 728	1	
TP-00 729	1	
TP-00 730	2	
TP-00 731	1	
TP-00 732	1	
TP-00 733	2	
TP-00 734	2	
TP-00 735	1	
TP-00 736	1	
TOTAL		12

COMPILATION REPORT

TP-00733

31. DELINEATION:

Delineation was by the Wild B-8 stereoplotter, using 1:15,000 scale color photography. Control and photography was adequate.

32. CONTROL:

See the attached Photogrammetric Plot Report dated January 1974.

33. SUPPLEMENTAL DATA:

None.

34. CONTOURS AND DRAINAGE:

Contours are not applicable to the project. Drainage was delineated by the Wild B-8 stereoplotter and by office interpretation of the photographs.

35. SHORELINE AND ALONGSHORE DETAILS:

Alongshore details were delineated by the Bild B-8 stereoplotter and by office interpretation of the photographs.

The mean high water line was delineated from the photographs.

36. OFFSHORE DETAILS:

None compiled.

37. LANDMARKS AND AIDS:

Compilation office prepared work copies of Forms 76-40 were forwarded to the field editor for verification, location and/or deletion.

38. CONTROL FOR FUTURE SURVEYS:

None.

39. JUNCTIONS:

See the attached Form 76-36B, Item #5 of the Descriptive Report concerning junctions.

40. HORIZONTAL AND VERTICAL ACCURACY:

No statement.

46. COMPARISON WITH EXISTING MAPS:

A comparison has been made with the following USGS Quadrangle: TACOMA NORTH, WASHINGTON, dated 1961, scale 1:24,000.

47. COMPARISON WITH NAUTICAL CHARTS:

A comparison has been made with the following USC&GS Charts: No. 6407, 12th edition, January 27, 1973, scale 1:15,000; No. 6460, 12th edition, August 19, 1972, scale 1:80,000; and No. 185-SC, 9th edition, March 10, 1973, scale 1:80,000.

ITEMS TO BE APPLIED TO NAUTICAL CHARTS IMMEDIATELY:

None.

ITEMS TO BE CARRIED FORWARD:

None.

Submitted by:

Albert C. Rauck, Jr. FOR
Charles Parker
Cartographic Aid
February 28, 1974

Approved for forwarding:

Albert C. Rauck, Jr.
Albert C. Rauck, Jr.
Chief, Coastal Mapping Section, AMC

January 11, 1978

GEOGRAPHIC NAMES

FINAL NAME SHEET

CM-7311 (Tacoma Harbor, Washington)

TP-00733

Blair Waterway

Commencement Bay

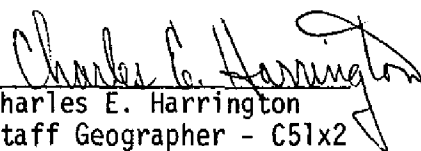
Hylebos Waterway

Northeast Tacoma

Sitcum Waterway

Tacoma

Approved by:


Charles E. Harrington
Staff Geographer - C51x2

NOAA FORM 75-74
(7-75)U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL OCEAN SURVEY

PHOTOGRAMMETRIC OFFICE REVIEW

TP - 00733

1. PROJECTION AND GRIDS RRW		2. TITLE RRW		3. MANUSCRIPT NUMBERS RRW		4. MANUSCRIPT SIZE RRW	
CONTROL STATIONS							
5. HORIZONTAL CONTROL STATIONS OF THIRD-ORDER OR HIGHER ACCURACY RRW				6. RECOVERABLE HORIZONTAL STATIONS OF LESS THAN THIRD-ORDER ACCURACY (Topographic stations) NA		7. PHOTO HYDRO STATIONS NA	
8. BENCH MARKS RRW		9. PLOTTING OF SEXTANT FIXES ALS		10. PHOTOGRAMMETRIC PLOT REPORT RRW		11. DETAIL POINTS RRW	
ALONGSHORE AREAS (Nautical Chart Data)							
12. SHORELINE RRW		13. LOW-WATER LINE RRW		14. ROCKS, SHOALS, ETC. RRW		15. BRIDGES RRW	
16. AIDS TO NAVIGATION RRW		17. LANDMARKS RRW		18. OTHER ALONGSHORE PHYSICAL FEATURES RRW		19. OTHER ALONGSHORE CULTURAL FEATURES RRW	
PHYSICAL FEATURES							
20. WATER FEATURES RRW				21. NATURAL GROUND COVER NA		22. PLANETABLE CONTOURS NA	
23. STEREOSCOPIC INSTRUMENT CONTOURS NA		24. CONTOURS IN GENERAL NA		25. SPOT ELEVATIONS NA		26. OTHER PHYSICAL FEATURES RRW	
CULTURAL FEATURES							
27. ROADS RRW		28. BUILDINGS RRW		29. RAILROADS RRW		30. OTHER CULTURAL FEATURES RRW	
BOUNDARIES							
31. BOUNDARY LINES NA				32. PUBLIC LAND LINES NA			
MISCELLANEOUS							
33. GEOGRAPHIC NAMES RRW				34. JUNCTIONS RRW		35. LEGIBILITY OF THE MANUSCRIPT RRW	
36. DISCREPANCY OVERLAY RRW		37. DESCRIPTIVE REPORT RRW		38. FIELD INSPECTION PHOTOGRAPHS ALS		39. FORMS RRW	
40. REVIEWER Richard R. White Richard R. White				SUPERVISOR, REVIEW SECTION OR UNIT Albert C. Rauck, Jr. 2/74			
41. REMARKS (See attached sheet)							
FIELD COMPLETION ADDITIONS AND CORRECTIONS TO THE MANUSCRIPT							
42. Additions and corrections furnished by the field completion survey have been applied to the manuscript. The manuscript is now complete except as noted under item 43.							
COMPILER J. Desch Joanne Desch 5/05/75				SUPERVISOR Albert C. Rauck, Jr.			
Reviewer A. L. Shands 5/75				Albert C. Rauck, Jr.			
43. REMARKS Q. I. Shands Refer to Form 76-360, Items 7 and 8							

FIELD EDIT REPORT

COMMENCEMENT BAY

TACOMA, WASHINGTON

OPR-412

MARCH - APRIL 1974

INTRODUCTION

Field edit reports are attached for the following maps: TP-00728, TP-00729, TP-00730, TP-00731, TP-00732, TP-00733, TP-00734, TP-00735, and TP-00736. Copies of the Field Edit Ozalids and extra ozalids were compared in the field with actual shore features. The field edit was done before signals were built in many areas, so positions of many items were estimated relative to nearby features. In many instances these positions fell on one or more natural ranges. Some sextant fixes were possible and were recorded for future reference. Height data for all features were noted as referenced to MLLW or MHW or simply by time and date. Unless followed by a "Z" for GMT, all times are in Zone +7 (105° meridian).

All notes have been made in violet ink on the Field Edit Ozalids with the exception of TP-00733 for which another sheet was used and labeled "Smooth Ozalid." All deletions are noted or underlined with green ink.

During our work in the survey area, a great deal of new construction was observed. Shoreline construction sites were noted - as fully as possible - on the ozalids. It is suggested that any questions about new piers, etc. under construction be directed to the Property Manager, Port of Tacoma (address below).

Hugh Wild
Property Manager
Port of Tacoma
P.O. Box 1837
Tacoma, WA 98401

Compilation of the maps agreed well with actual shore features; any discrepancies are noted on the ozalids. Field edit of these manuscripts is not complete, especially for the inland. It is felt that all shore features of importance to the mariner have been adequately covered and noted.

Submitted by,

R. W. Mercer

R.W. Mercer
ENS, NOAA

Approved by,

Michael H. Fleming

M.H. Fleming
CDR, NOAA
Commanding Officer
NOAA SHIP DAVIDSON

FIELD EDIT REPORT

MAP TP-00733

TACOMA, WASHINGTON

MARCH-APRIL, 1974

Field edit of map TP-00733 was done by Ens. Roger W. Mercer, Ens. James D. Sarb, and Ens. John Oswald during the months of March and April, 1974. Inspection was done from a launch and skiff with shore inspection on foot where required.

METHOD

A copy of the Field Edit Ozalid was examined in the field and compared with shore features. Mean High Water Line verification was done by visual comparison with the manuscript.

The discrepancy Ozalid was taken into the field for rough notes by mistake; another Ozalid was used for application of smoothed notes in violet ink. Sextant fixes were taken on many dolphins which were plotted at that time; and, consequently, no records were kept of sextant fixes. Blue prints for the pier extension on Sitcum Waterway are attached to the smooth Ozalid. Geodetic positions of red-lined items on the Field Edit Ozalid are appended to this report along with fix data for two dolphins. All times are based on the 105° W meridian (Zone +7).

ADEQUACY OF COMPILATION

Compilation of this map seems good. Photogrammetric locations of features agree well with hydrographic locations.

RECOMMENDATIONS

It is recommended that this manuscript be revised as per field edit notes on the smooth Ozalid and then be accepted as an advanced manuscript.

Submitted by,

Roger W. Mercer

Roger W Mercer
ENS, NOAA

TP-00733

DESCRIPTION

Second dolphin shoreward from SW corner of log boom

Left - Tacoma Red Stack, 1933	L A 29° 57.4'
Center - West Corner of Pier 25	
Right - Hylebos Light	R A 35° 34.5'

Shoremost dolphin of SE Boom face

Left - Tacoma Chemical Plant, Gold Dome	L A 33° 18.0'
Center - W. Corner of Pier 25	
Right - Hylebos Light	R A 30° 55.0'

Geodetic Positions by PMC Field Party

Port Industrial Waterway Light
N 47° 16' 42.17", 122° 24' 52.953" W

Hylebos Waterway Light
N 47° 17' 14.5222", 122° 24' 41.679" W

ADDENDA FIELD EDIT REPORT

Commencement Bay, Washington
Dec 1974 - Jan 1975
OPR-412
Project CM-7311

This report is a follow-up and completion of the original field edit accomplished in this area in March and April of 1974. Certain deficiencies were noted in the original field edit; and this report is being submitted to correct, clarify, or alleviate any errors or misconceptions that may have been conveyed in the original report.

Although this report was not intended to be a complete re-field edit of the area, certain items from the previous report were checked to verify positions and resolve suspect features. It is suspected the original field editors did not use the photographs to their full advantage as the majority of items in question could be located by photogrammetric methods.

The majority of the landmarks were verified by computing the inverse for intersection stations and occupying marked triangulation stations and observing theodolite cuts.

The field edit copies of the manuscripts were used for the field corrections (in blue and dated) and the photographs were cross-referenced to the field edit copies.

Adequacy: The extent and accuracy of this field edit with amended items of the original field edit and completed forms 76-40 now appears complete.

Pertinent information for each individual discrepancy sheet is listed under that specific sheet.

TP-00728

Re-field edited 12/11/74. Agreed with the original field edit except the bluff in question is considered of landmark value. It is of significant height, and distinct boundaries are clear as plotted.

For verification of Pt. Defiance Light see attached NOAA Form 76-40.

TP-00729

Re-field edited 12/11/74. Original field edit complete. Brown Point Lighthouse recovered. See attached form 76-40.

TP-00730

Re-field edited on 12/12/74, 12/13/74, and 1/10/75. All landmarks were recovered. Lighted aids to navigation were located by photogrammetric methods on photograph 73E9100. The triangulation station TARGET, 1952, in question was reported destroyed in 1965 by H.J.S. (page 41 of book 392) and no attempt was made to recover it.

The position of the Commencement Bay Measured Nautical Mile northwest range front marker was determined by an angle distance from reference mark of the triangulation station TARGET. The position of the northwest range rear marker was determined by an angle and distance from the reference mark of triangulation station BLUFF, 1935. Both positions are less than third order. See the enclosed computations and form 76-40.

TP-00731

Re-field edited on 12/12/74. The positions of the Commencement Bay Measured Nautical Mile southeast markers, both front and rear, were determined by an angle and distance from RUSTON, RM NO2. Both positions are less than third order. See the enclosed computations and form 76-40.

TP-00732

Re-field edited on 12/10/74. Nonfloating aids to navigation were triangulation stations that were recovered. The new stack considered of landmark value was located photogrammetrically.

The Grain Export Facility under construction in April, 1974, is nearing completion. The pier faces are complete with work on the tower continuing. Port authorities expect to have the facility in operation in June, 1975. The plans for this facility were obtained and are enclosed.

TP-00733

This sheet was re-field edited on 12/10/74, 1/6/75, and 1/10/75. Two charted tanks are gone and should be deleted from the charts. See enclosed form 76-40.

Three landmarks (triangulation stations) were recovered and recovery notes submitted. The twin chimneys were located photogrammetrically on photograph 73E9091. The charted stack mentioned in the April, 1974, field edit as being of no landmark value is considered of landmark value in this report. Although poorly visible from Commencement Bay, it is quite distinguishable in the Hylebos Waterway. See photograph 73E9091.

Two large dome-shaped storage elevators depicted on the charts, but not compiled on the ozalid, should be left on the charts, as they are salient features and visible from offshore in Commencement Bay. See photograph

73E9113. Two navigation lights were recovered, and the fog signals were located photogrammetrically on photograph 73E9114.

TP-00734

The three items not previously investigated were field edited 12/12/74 and noted on the ozalid. One nonfloating aid to navigation was recovered. One tank, as noted on form 76-40, should be deleted from the chart, as it no longer exists.


Fourteen landmarks were located. Twelve were triangulation and were recovered. Two were located photogrammetrically on photograph 73E9104.

TP-00736

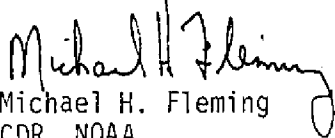
Re-field edited 12/12/74. The new boat^{ALJ} was located on photograph 73E9090 by planetable methods. It is a private^{ramp} boat ramp and not maintained by the port authorities. The two stacks considered of landmark value by this field edit were located photogrammetrically on photograph 73E9089 and 73E9088.

There is new construction of a barge-loading facility in the Blair Waterway turning basin. The plans for this facility were obtained from the Port authorities and are enclosed.

Respectfully submitted,


D.S. Eilers
LTJG, NOAA

Approved by,


Michael H. Fleming
CDR, NOAA
Commanding Officer

[illegible]

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	L. L. Riggers, PMC; D. S. Eilers, Lt. (jg), NOAA J. Desch
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
<p>OFFICE 1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75</p>	
<p>FIELD 1. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field P - Photogrammetric L - Located Vis - Visually V - Verified 1 - Triangulation 5 - Field identified 2 - Traverse 6 - Theodolite 3 - Intersection 7 - Planetable 4 - Resection 8 - Sextant</p> <p>A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-1 8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	
<p>FIELD (Cont'd) B. Photogrammetric field positions* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982</p> <p>11. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75</p> <p>111. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>	

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NON-NAVIGATIONAL LANDMARKS FOR CHARTS

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

<input checked="" type="checkbox"/> TO BE CHARTED <input type="checkbox"/> TO BE REVISED <input type="checkbox"/> TO BE DELETED		REPORTING UNIT (Field Party, Ship or Office) Coastal Mapping Div. AMC, Norfolk, VA	STATE Washington	LOCALITY Tacoma Harbor	DATE 4/24/75
The following objects HAVE <input checked="" type="checkbox"/> BEEN INSPECTED from seaward to determine their value as landmarks. OPR PROJECT NO. 412		HAVE <input checked="" type="checkbox"/> NOT <input type="checkbox"/> BEEN INSPECTED from seaward to determine their value as landmarks. JOB NUMBER CM-7311	SURVEY NUMBER TP-00733		

OPR PROJECT NO.		412	JOB NUMBER		CM-7311	SURVEY NUMBER		TP-00733	DATUM	NA 1927				METHOD AND DATE OF LOCATION (See instructions on reverse side)		CHARTS AFFECTED
CHARTING NAME		DESCRIPTION (Record reason for deletion of landmark or aid to navigation. Show triangulation station names, where applicable, in parentheses)								POSITION				FIELD		
		LATITUDE		LONGITUDE						OFFICE						
		°	'	"/	D.M. Meters	°	'	"/	D.P. Meters							
CUPOLA	(TACOMA CHEMICAL PLANT GOLD DOME, 1935)	47	16	47.217	1458.2	122	24	10.939	229.9	73E(C)9114 6/22/73				Triang. Rec. 12/10/74		6460 6401, 6407 185-SC
RED STACK	(TACOMA, RED STACK, 1933)	47	16	46.341	1431.1	122	24	08.896	187.0	73E(C)9114 6/22/73				Triang. Rec. 12/10/74		6460 6401, 6407 185-SC
CHIMNEY	WEST CHIMNEY (of TWIN CHIMNEYS)	47	16	35.85	1107	122	23	32.83	690	73E(C)9091 6/22/73				P-5-V 12/10/74 73E9091		6460 6401, 6407 185-SC
CHIMNEY	EAST CHIMNEY (of TWIN CHIMNEYS)	47	16	35.72	1103	122	23	32.26	678	73E(C)9091 6/22/73				P-5-V 12/10/74 73E9091		6460 6401, 6407 185-SC
TANK	(PORT DOCKS, BLACK TANK, 1927)	47	16	32.660	1008.6	122	24	40.386	848.8	73E(C)9114 6/22/73				Triang. Rec. 12/10/74		6460 6401, 6407 185-SC
STACK	TALL LONE CONCRETE STACK HT. = 200 (215) FT.	47	16	32.67	1009	122	23	24.36	512	73E(C)9091 6/22/73				P-5-V 12/10/74 73E9091		6460 6401, 6407 185-SC
GRAIN ELEVATOR		47	16	28.14	869	122	24	55.24	1161	Position cut in from 73E(C)9113-9114				Field Editor failed to identify as landmark		6460 6401, 6407 185-SC

14
27
6

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	I. L. Rogers, PMC; D. S. Eilers, Lt. (jg), NOAA J. Desch
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify) FIELD ACTIVITY REPRESENTATIVE OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64)	
OFFICE 1. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75
**FIELD POSITIONS are determined by field observations based entirely upon ground survey methods. **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.	

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	
POSITIONS DETERMINED AND/OR VERIFIED	L. L. Riggers, PMC; D. S. Eilers, Lt. (jg), NOAA J. Desch
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'	
(Consult Photogrammetric Instructions No. 64.)	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.
*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	

REVIEW REPORT

TP-00733

SHORELINE

January 26, 1978

61. GENERAL STATEMENT:

Many water features not visible on the photographs were spotted on a paper ozalid, labeled "Smooth Ozalid", by the field editor. This method of location is not considered to meet accuracy standards. All such features are labeled "(PA)" for position approximate on the map.

A landmark grain elevator shown on Chart 185-SC at lat. $47^{\circ} 16.5'$, long. $122^{\circ} 24.9'$ is visible on the photographs however, it was not shown on the Class III Map. This apparent oversight was discovered during the application of field edit. This landmark was added to the Class I Map and included on the 76-40 form at that time. The object was not verified by the field editor. By photogrammetric comparison the elevator is significantly higher than the landmark tank located northeast of it.

See Summary, page 6 of this descriptive report.

62. COMPARISON WITH REGISTERED TOPOGRAPHIC SURVEYS:

Not applicable.

63. COMPARISON WITH MAPS OF OTHER AGENCIES:

Not applicable.

64. COMPARISON WITH CONTEMPORARY HYDROGRAPHIC SURVEYS:

The map was compared with a copy of Final Verified Smooth-sheets H-9411 (DA-5-2-74) and H-9412 (DA-5-3-74). There are no significant differences.

65. COMPARISON WITH NAUTICAL CHARTS:

Comparison was made with Chart 18453, 1:15,000 scale, 14th edition dated May 29, 1976.

A small building shown on the chart projecting out over the water at lat. $45^{\circ} 16.3'$, long. $122^{\circ} 24.5'$ does not appear on the photographs. The pier shown in that position on the map however, is plainly visible.

The north shore of Commencement Bay plots inshore of its charted position by a significant amount. Consequently, buildings charted onshore are shown on the map projecting out beyond the mean high water line.

66. ADEQUACY OF RESULTS AND FUTURE SURVEYS:

This map complies with the project instructions and meets the requirements for Bureau Standards and the National Standards of Map Accuracy.

Submitted by:

A. L. Shands

A. L. Shands
Final Reviewer

1 Approved for forwarding:

Albert C. Rauch Jr. per

Jeffrey G. Carlen, CDR
Chief, Coastal Mapping Division, AMC

Approved:

John D. Perrow Jr.
Chief, Photogrammetric Branch

James Collier
Chief, Coastal Mapping Division

